

WHAT IS CLAIMED IS:

1. An image evaluation chart, comprising:

a resolution inspection area including:

5 a center point located at a center part of the chart;

a regular-squared outer line located at outside of the center point; and

a plurality of resolution measurement lines symmetrically arranged at right and left sections and upper and lower sections on the basis of the center point,

10 wherein each of the plurality of resolution measurement lines is classified into a plurality of black-colored lines and a plurality of white-colored lines, the black-colored lines and the white-colored lines are alternately arranged while being spaced apart from each other at regular intervals, and the longer a distance from the center point to the regular-squared outer line, the larger a width of the resolution measurement line.

20 2. The image evaluation chart as set forth in claim 1, wherein:

although the resolution measurement line is vertically or horizontally cut on the basis of any one of its own points, a width ratio of the black-colored line is the same as that of the white-colored line.

3. The image evaluation chart as set forth in claim 1,  
wherein the chart is manufactured on the basis of an LPM (Line  
Per Millimeter) unit serving as a DPI (Dot Per Inch) standard  
of a lens.

4. The image evaluation chart as set forth in claim 1,  
wherein:

one end of the resolution measurement line is close to  
the center point, the other end reaches the outer line to  
create the largest line width, and the largest line width is  
more than two times larger than the nearest line width close to  
the center point.

5. The image evaluation chart as set forth in claim 1,  
wherein:

five black-colored lines are contained in the right and  
left sections and the upper and lower sections such that  
black-colored lines are contained in the resolution inspection  
area, and four white-colored lines are contained in the right  
and left sections and the upper and lower sections such that  
white-colored lines are contained in the resolution inspection  
area.

6. The image evaluation chart as set forth in claim 1,  
wherein:

one resolution inspection area is positioned at the  
center of the chart, and more than one resolution inspection  
5 area is positioned in the vicinity of the resolution inspection  
area positioned at the center of the chart.

7. The image evaluation chart as set forth in claim 6,  
wherein the image evaluation chart has the same horizontal and  
10 vertical ratios as those of a pixel of an image sensor of video  
equipment.

8. The image evaluation chart as set forth in claim 1,  
further comprising:

15 a plurality of balance measurement lines symmetrically  
displayed at individual positions corresponding to individual  
resolution measurement lines at the outside of the resolution  
inspection area, while being spaced apart from the outer line  
by a predetermined distance,

20 wherein each of the balance measurement lines is  
classified into a plurality of black-colored lines and a  
plurality of white-colored lines, and the black-colored lines  
and the white-colored lines indicated by straight lines each  
having a predetermined length are alternately arranged while  
25 being spaced apart from each other at regular intervals.

9. The image evaluation chart as set forth in claim 8, wherein the balance measurement lines each have the same width as the largest line width of the resolution measurement line.

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10. The image evaluation chart as set forth in claim 8, further comprising:

a plurality of position check points symmetrically arranged among the balance measurement lines in a diagonal direction to the center point.

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11. An image evaluation chart, comprising:

a resolution inspection area including:

a center point located at a center part of the chart;

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a regular-squared outer line for allowing the center point to be located at the center of the chart; and

a plurality of resolution measurement lines symmetrically arranged at right and left sections and upper and lower sections on the basis of the center point,

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wherein each of the plurality of resolution measurement lines is classified into a plurality of black-colored lines and a plurality of white-colored lines, the black-colored lines and the white-colored lines are alternately arranged while being spaced apart from each other at regular intervals, the longer a distance from the center point to the regular-squared outer

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line, the larger a width of the resolution measurement line,  
and the number of the resolution inspection areas is set to 9,  
that is, one resolution inspection area is positioned at the  
center of the chart, the right and left sections each contain  
5 one resolution inspection area, the upper and lower sections  
each contain one resolution inspection area, and four diagonal  
sections each contain one resolution inspection area;

a plurality of balance measurement lines displayed at  
individual positions corresponding to individual resolution  
10 measurement lines at the outside of the resolution inspection  
area located at the center of the chart, wherein a plurality of  
black-colored lines and a plurality of white-colored lines are  
alternately arranged while being spaced apart from each other  
by a predetermined distance; and

15 a plurality of position check points arranged among the  
balance measurement lines in a diagonal direction to the  
center point.

12. The image evaluation chart as set forth in claim 11,  
20 wherein:

although the resolution measurement line is vertically or  
horizontally cut on the basis of any one of its own points, a  
width ratio of the black-colored line is the same as that of  
the white-colored line.

13. The image evaluation chart as set forth in claim 11,  
wherein:

one end of the resolution measurement line is close to  
the center point, the other end reaches the outer line to  
5 create the largest line width, and the largest line width is  
more than two times larger than the nearest line width close to  
the center point.

14. The image evaluation chart as set forth in claim 11,  
10 wherein:

five black-colored lines are contained in the right and  
left sections and the upper and lower sections such that 20  
black-colored lines are contained in the resolution inspection  
area, and four white-colored lines are contained in the right  
15 and left sections and the upper and lower sections such that 16  
white-colored lines are contained in the resolution inspection  
area.

15. A method for testing performance of video equipment,  
20 comprising the steps of:

a) preparing a chart including a plurality of balance  
measurement lines and a resolution inspection area which is  
composed of a center point located at a center part of the  
chart, a regular-squared outer line located at outside of the  
25 center point, and a plurality of resolution measurement lines

symmetrically arranged at right and left sections and upper and lower sections on the basis of the center point,

wherein each of the resolution measurement lines is classified into a plurality of black-colored lines and a plurality of white-colored lines, the black-colored lines and the white-colored lines are alternately arranged while being spaced apart from each other at regular intervals, the longer a distance from the center point to the regular-squared outer line, the larger a width of the resolution measurement line, a first resolution inspection area is positioned at the center of the chart and more than one resolution inspection area is located in the vicinity of the first resolution inspection area,

wherein the balance measurement lines are displayed at individual positions corresponding to individual resolution measurement lines at the outside of the resolution inspection area located at the center of the chart, and are classified into a plurality of black-colored lines and a plurality of white-colored lines that are alternately arranged while being spaced apart from each other by a predetermined distance;

b) properly installing a lighting device to provide the chart with uniform illuminance;

c) properly installing video equipment to allow the center of the chart to be aligned with the center of an image sensor of the video equipment;

d) capturing an image of the chart; and

e) comparing a reference value for the chart with a real value created by capturing the chart image, and testing a variety of performances such as resolution, balance, view angle, distortion, and focus.

16. The method as set forth in claim 15, wherein a prescribed equation for calculating a resolving power to determine the resolution and the balance is represented by the following Equation 1:

[Equation 1]

Ref = Wa - Ba

$$Wa = \sum_{i=1}^{16} Wi / 16, Ba = \sum_{i=1}^{20} Bi / 20$$

where "Ref" is a resolving power, "Wa" is an overall mean value of the white-colored lines contained in the resolution measurement lines, and "Ba" is an overall mean value of the black-colored lines.

17. The method as set forth in claim 16, further comprising the steps of:

selecting a clear portion from among the resolution measurement lines of the captured chart;



calculating a resolving power of the clear portion using the equation; and

setting the calculated resolving power to a resolution value.

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18. The method as set forth in claim 16, wherein the step for determining the balance includes the steps of:

analyzing the balance measurement lines to acquire individual values of the white-colored lines and the black-colored lines, and applying the acquired values to the Equation 1 to acquire a reference resolving power;

selecting portions overlapped with the outer line from among the resolution measurement lines arranged at the center of the chart and its nearby areas, analyzing the selected portions to acquire individual values of the white-colored lines and the black-colored lines, and applying the acquired values to the Equation 1 to acquire a resolving power of individual positions; and

comparing the reference resolving power with a resolving power of individual positions, and determining performance of balance on the basis of the result of the comparison.

19. The method as set forth in claim 15, wherein the view angle is determined using the following Equation 2:

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[Equation 2]

$$\text{view angle} = \tan^{-1} \{ (\text{dis\_d}/2)/D \} \times 2$$

$$\text{dis\_d} = \text{sqrt} (\text{dis\_x}^2 + \text{dis\_y}^2)$$

5        where "dis\_d" is a distance of a diagonal line actually captured, "D" is a distance between the chart and the video equipment, "dis\_x" is a distance of a really-captured "X", "dis\_y" is a distance of really-captured "Y", and "sqrt" means a square root.

10        20. The method as set forth in claim 15, wherein the distortion is determined using the following Equation 3:

[Equation 3]

15        Total distortion = {X-axis distortion + Y-axis distortion}/2

$$\text{X-axis distortion} = \{ (\text{Xc-Xa}) + (\text{Xi-Xg}) \} / \{ \text{Xf-Xd} \} \times 2 \}$$

$$\text{Y-axis distortion} = \{ (\text{Yg-Ya}) + (\text{Yi-Yc}) \} / \{ \text{Yh-Yb} \} \times 2 \}$$

20        where "Xc-Xa" indicates a difference between X coordinates of center points of both upper ends of the chart, "Xi-Xg" indicates a difference between X coordinates of center points of both lower ends of the chart, "Xf-Xd" indicates a difference between X coordinates of center points of both  
25        center ends of the chart, "Yg-Ya" indicates a difference

between Y coordinates of center points of upper and lower left-sided ends of the chart, "Yi-Yc" indicates a difference between Y coordinates of center points of upper and lower right-sided ends of the chart, and "Yh-Yb" indicates a difference between Y coordinates of center points of upper and lower center ends of the chart.

21. The method as set forth in claim 15, wherein the step for determining the focus includes the steps of:

calculating a maximum average value of sharpness created by a correct focus using to the chart; and

setting the focus to the calculated maximum average value to provide the best focus.